

IN THE CLAIMS

Please amend the claims as described below. In accordance with 37 CFR §1.121, a complete listing of all claims in the application is provided below. Notably, the status of each claim is indicated in the parenthetical expression adjacent to the corresponding claim number.

Claims 1 - 50 (canceled).

1 Claim 51 (**new**): An EIW unit for use in sensing a physical characteristic of an
2 electrically conductive layer that is deposited or formed by integrated circuit processing
3 equipment which is used to manufacture an integrated circuit, the EIW unit comprising:
4 a substrate having a wafer-shaped profile and a first surface to receive the
5 conductive layer that is deposited or formed by the integrated circuit processing equipment;
6 and
7 a sensor structure disposed on or in the substrate, the sensor structure including a
8 plurality of electrodes that are disposed on or in the substrate such that at least a portion of
9 each electrode is exposed on the first surface of substrate wherein each electrode is
10 spatially located, relative to the other electrodes and the conductive layer, on or in the
11 substrate to permit measuring of the physical characteristic of the conductive layer after
12 deposition or formation of the conductive layer on the EIW unit.

1 Claim 52 (**new**): The EIW unit of claim 51 wherein the plurality of electrodes, in
2 conjunction with the conductive layer deposited on the EIW unit by the integrated circuit
3 processing equipment, form a four-point probe type sensor.

1 Claim 53 (**new**): The EIW unit of claim 51 further including measurement
2 circuitry, coupled to the sensor structure, to sample the electrical characteristic of the
3 conductive layer.

1 Claim 54 (**new**): The EIW unit of claim 53 wherein the measurement circuitry is
2 disposed in or on the substrate and includes a current or voltage source which is coupled to
3 the electrodes of the sensor structure.

1 Claim 55 (**new**): The EIW unit of claim 54 wherein the measurement circuitry
2 further includes a current or voltage measuring circuitry which is coupled to the electrodes
3 of the sensor structure.

1 Claim 56 (**new**): The EIW unit of claim 53 wherein the measurement circuitry
2 includes data storage to store the sampled electrical characteristic of the conductive layer.

1 Claim 57 (**new**): The EIW unit of claim 56 wherein the measurement circuitry
2 operates in a real-time mode.

1 Claim 58 (**new**): The EIW unit of claim 53 further including:
2 communication circuitry, disposed in or on the substrate, to provide the sampled
3 electrical characteristic of the conductive layer to an external device; and
4 at least one rechargeable battery, to provide electrical power to the communication
5 circuitry and measurement circuitry.

1 Claim 59 (**new**): The EIW unit of claim 53 wherein the measurement circuitry
2 operates in an end-point mode.

1 Claim 60 (**new**): A system for sensing the physical characteristic of a first
2 conductive layer that is deposited or formed by integrated circuit processing equipment
3 which is used to manufacture an integrated circuit, the system comprising:

4 an EIW unit, including:

5 a substrate having a wafer-shaped profile and a first surface to receive the
6 surface structure that is deposited or formed by the integrated circuit processing
7 equipment; and

8 a first sensor structure disposed on or in the substrate, the first sensor
9 structure including a plurality of electrodes that are disposed on or in the substrate
10 such that at least a portion of each electrode is exposed on the first surface of the
11 substrate wherein each electrode is spatially located, relative to the other electrodes
12 and the first conductive layer, on or in the substrate to permit measuring of the
13 physical characteristic of the first conductive layer after deposition or formation by
14 the integrated circuit processing equipment on the EIW unit;

15 measurement circuitry, coupled to the first sensor structure, to sample an electrical
16 characteristic of the first conductive layer;

17 a computing device, coupled to the measurement circuitry, to receive data which is
18 representative of the electrical characteristic of the first conductive layer and to determine
19 the physical characteristic of the first conductive layer using the received data.

1 Claim 61 (**new**): The system of claim 60 wherein at least a portion of the
2 measurement circuitry is disposed on or in the substrate of the EIW unit.

1 Claim 62 (**new**): The system of claim 60 wherein the EIW unit further includes a
2 second sensor structure disposed on or in the substrate, the second structure including a
3 plurality of electrodes that are disposed on or in the substrate such that at least a portion of
4 each electrode is exposed on the first surface of substrate wherein each electrode is
5 spatially located, relative to the other electrodes of the second sensor structure and a
6 second conductive layer, on or in the substrate to permit measuring of a physical
7 characteristic of the second conductive layer after deposition or formation of the second
8 conductive layer by the integrated circuit processing equipment on the EIW unit.

1 Claim 63 (**new**): The system of claim 62 wherein:
2 the measurement circuitry is coupled to the second sensor structure to sample an
3 electrical characteristic of the second conductive layer; and
4 the computing device receives the data which is representative of the electrical
5 characteristic of the second conductive layer and, using that data, determines the physical
6 characteristic of the second conductive layer.

1 Claim 64 (**new**): The system of claim 63 wherein the physical characteristic of
2 the first and second conductive layers are the linewidth of the conductive layers and
3 wherein the computing device determines a linewidth distribution using the data which is

4 representative of the electrical characteristic of the first conductive layer and the data which
5 is representative of the electrical characteristic of the second conductive layer.

1 Claim 65 (**new**): The system of claim 60 wherein the plurality of electrodes, in
2 conjunction with the first conductive layer deposited on the first surface of the EIW unit,
3 form a four-point probe type sensor.

1 Claim 66 (**new**): The system of claim 60 wherein the measurement circuitry is
2 disposed in or on the substrate and includes a current or voltage source which is coupled to
3 the electrodes of the first sensor structure.

1 Claim 67 (**new**): The system of claim 66 wherein the measurement circuitry
2 further includes a current or voltage measuring circuitry which is coupled to the electrodes
3 of the first sensor structure.

1 Claim 68 (**new**): The system of claim 66 wherein the measurement circuitry
2 includes data storage to store data which is representative of the electrical characteristic of
3 the first conductive layer.

1 Claim 69 (**new**): The system of claim 66 wherein the EIW unit further includes:
2 communication circuitry, disposed in or on the substrate, to provide the data which is
3 representative of the electrical characteristic of the first conductive layer to the computing
4 device; and

5 at least one rechargeable battery, to provide electrical power to the communication
6 circuitry and measurement circuitry.

1 Claim 70 (**new**): The system of claim 60 wherein the measurement circuitry
2 operates in a real-time mode.

1 Claim 71 (**new**): The system of claim 60 wherein the measurement circuitry
2 operates in an end-point mode.

1 Claim 72 (**new**): The system of claim 60 wherein electrical characteristic includes
2 a sheet resistance of the first conductive layer and wherein the physical characteristic of
3 the first conductive layer is the thickness of the first conductive layer.

1 Claim 73 (**new**): The system of claim 72 wherein measurement circuitry
2 periodically samples electrical characteristic of the first conductive layer during deposition
3 or formation of the first conductive layer by the integrated circuit processing equipment on
4 the first surface of the EIW unit.

1 Claim 74 (**new**): The system of claim 73 wherein computing device receives the
2 periodic samples of the electrical characteristic of the first conductive layer and, in response
3 thereto, calculates the thickness of the first conductive layer over time.

1 Claim 75 (new): The system of claim 74 wherein the periodic samples of the
2 electrical characteristic of the first conductive layer are representative of the entire
3 deposition or formation process.

1 Claim 76 (new): The system of claim 74 wherein the formation process is a
2 polishing process or chemical-mechanical polishing (CMP) process.

1 Claim 77 (new): An EIW unit for use in sensing a first parameter of a first
2 conductive layer that is deposited or formed by integrated circuit processing equipment
3 which is used to manufacture an integrated circuit, the EIW unit comprising:

4 a substrate having a wafer-shaped profile and a first surface to receive the first
5 conductive layer that is deposited or formed by the integrated circuit processing equipment;
6 and

7 a sensor structure disposed on or in the substrate, the sensor structure including:

8 a plurality of electrodes that are disposed on or in the substrate; and

9 a base pad electrically connected to the plurality of electrodes and disposed
10 on or in the substrate such that at least a portion of the pad is exposed on the first
11 surface of the substrate, wherein the base pad is spatially located on or in the
12 substrate such that the first conductive layer is deposited or formed on the base pad
13 by the integrated circuit processing equipment.

1 Claim 78 (new): The EIW unit of claim 77 wherein the plurality of electrodes,
2 base pad and first conductive layer form a four-point probe type sensor.

1 Claim 79 (**new**): The EIW unit of claim 77 further including measurement
2 circuitry, coupled to the sensor structure, to sample an electrical characteristic of the first
3 conductive layer.

1 Claim 80 (**new**): The EIW unit of claim 79 wherein the measurement circuitry is
2 disposed in or on the substrate and includes a current or voltage source which is coupled to
3 the electrodes of the sensor structure.

1 Claim 81 (**new**): The EIW unit of claim 80 wherein the measurement circuitry
2 further includes a current or voltage measuring circuitry which is coupled to the electrodes
3 of the sensor structure.

1 Claim 82 (**new**): The EIW unit of claim 79 wherein the measurement circuitry
2 includes data storage to store data which is representative of the electrical characteristic of
3 the first conductive layer.

1 Claim 83 (**new**): The EIW unit of claim 79 wherein the measurement circuitry
2 operates in a real-time mode.

1 Claim 84 (**new**): The EIW unit of claim 83 further including:
2 communication circuitry, disposed in or on the substrate, to provide the data which is
3 representative of the electrical characteristic of the first conductive layer to an external
4 device; and

5 at least one rechargeable battery, to provide electrical power to the communication
6 circuitry and measurement circuitry.

1 Claim 85 (**new**): The EIW unit of claim 79 wherein the measurement circuitry
2 operates in an end-point mode.

1 Claim 86 (**new**): The EIW unit of claim 79 further including computing circuitry
2 disposed on or in the substrate and coupled to the measurement circuitry, wherein the
3 computing circuitry determines the first parameter of the first conductive layer using the
4 electrical characteristic of the first conductive layer.

1 Claim 87 (**new**): The EIW unit of claim 86 wherein the first parameter is the
2 linewidth of the first conductive layer.

1 Claim 88 (**new**): The EIW unit of claim 79 wherein the electrical characteristic
2 includes the resistivity of the first conductive layer.

1 Claim 89 (**new**): The EIW unit of claim 88 further including computing circuitry
2 coupled to the measurement circuitry, wherein the computing circuitry determines the first
3 parameter using resistivity of the first conductive layer.

1 Claim 90 (**new**): The EIW unit of claim 89 wherein the first parameter is the
2 thickness of the first conductive layer.

1 Claim 91 (**new**): The EIW unit of claim 79 wherein measurement circuitry
2 periodically samples an electrical characteristic of the first conductive layer during
3 deposition or formation of the first conductive layer by the integrated circuit processing
4 equipment on the first surface of the EIW unit.

1 Claim 92 (**new**): The EIW unit of claim 91 wherein the formation process is a
2 polishing process.

1 Claim 93 (**new**): The EIW unit of claim 92 wherein the polishing process is a
2 chemical-mechanical polishing (CMP) process.